

Duane F. Brautigam, P.E.
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Education: B. S., Civil Engineering, 1973, University of Pittsburgh

Professional Engineering Registration: Pennsylvania, Florida

Experience Summary: Duane retired in 2015 from the Florida Department of Transportation (FDOT) in Tallahassee, after nearly 18 years of service with FDOT, and 42 years of total experience in Transportation. He served most recently as FDOT's Director of the Office of Design, with previous positions as State Specifications Engineer and Manager of the State Specifications and Estimates Office. Prior to joining FDOT, his career involved major bridges in the private sector; with assignments in design, construction, project management, construction engineering, contract administration and engineering management. His private sector bridge experience includes 16 years with Contractors, followed by 8 years as Deputy Director & Associate Vice President of a bridge engineering consultant firm.

Florida Department of Transportation, Tallahassee, Florida, 1997 to 2015

Director, Office of Design, July 2011 to April 2015:

Reporting to the Chief Engineer, Mr. Brautigam led the Office of Design in its mission to lead, guide and support the Florida design community to deliver innovative transportation solutions for the effective delivery of the Florida Department of Transportation's Work Program. During his tenure, the Office of Design consisted of over 140 people in six offices dedicated to that effort, including Roadway Design, Structures Design, Production Support, CADD, Surveying & Mapping and Project Review and provided policies, procedures, manuals, computer applications, quality assurance, management tools, training and other production support to seven Districts and Florida's Turnpike Enterprise. Mr. Brautigam also served as FDOT's liaison with the Florida Association of County Engineers and Road Superintendents (FACERS).

Manager, Specifications & Estimates Office, July 2006 to July 2011:

Reporting to the Director, Office of Design, Mr. Brautigam managed and supervised approximately 25 people, directing activities in several key functional areas within Florida DOT's Central Office, including Specifications Development, Preliminary Estimates, Estimating Systems Support, Product Evaluation, Project Review of Major Projects, Value Engineering and Local Agency Program activities. Work products included: FDOT's Specifications for Road & Bridge Construction, Basis of Estimates Manual, Long Range Estimating System, Contract Bid Reviews, Work Program Estimate Reviews, Qualified Products List, Value Engineering Program, Electronic Review Comments System, Quality Assurance Reviews, Cost-Risk Analysis and Training in

support of the above. At the Office of Design management level, he sponsored Design's Knowledge Management efforts, also acting as Design's primary liaison with the Florida Transportation Builders Association, the Florida Association of County Engineers & Road Superintendents, and the American Public Works Association.

State Specifications Engineer, May 1997 to July 2006:

Prior to the consolidation of Specifications and Estimates Offices into one cost center (see above), Mr. Brautigam managed and supervised 10-15 employees as State Specifications Engineer, responsible for Specifications Development, Product Evaluation and Project Review of Major Projects. Major accomplishments during this period include the early establishment of an acclaimed Specifications Internet website, implementation of electronically prepared specifications packages by consultants, specifications for use by Local Agencies, oversight of FDOT's nationally recognized Qualified Products List, the establishment of a process for evaluation of New Products, and the establishment of a quality assurance process for review of major projects. In addition to serving on numerous task teams within FDOT, Mr. Brautigam worked very closely with the Federal Highway Administration, the Florida Transportation Builders Association, Local Agencies Product Manufacturers, Vendors and other external stakeholders on Specifications and Product Evaluation issues.

LoBuono, Armstrong & Associates, Tallahassee, Florida, 1989 to 1997:

Mr. Brautigam served as Deputy Director of Operations for this bridge engineering firm headquartered in Tallahassee, Florida, with additional offices in Miami, Tampa, Boston, Sacramento and San Pedro, California. From a firm of less than 20 employees in one office in 1989, LoBuono, Armstrong & Associates (LAA) grew to approximately 60 employees during his tenure, operating as the specialty bridge division of Frederic R. Harris, Inc., now part of AECOM. In 1993, he was also named as an Associate Vice President of Harris. His responsibilities at LAA were wide ranging, mostly of a management, finance and administration nature, including managing the Tallahassee office, providing liaison with other LAA offices, and coordination with the parent company in New York. Technical assignments included participation in constructability reviews, value engineering studies and preparation of construction specifications and special provisions for a variety of projects.

Paschen Contractors, Inc., Chicago, Illinois, 1987 to 1989:

Mr. Brautigam served as on-site Project Engineer during the construction of four precast segmental concrete ramp structures for the interchange of the Illinois North-South Tollway (I-355) with the Illinois East-West Tollway (I-5) in Downers Grove, Illinois, part of a project exceeding \$100 million in Chicago's western suburbs. Responsibilities included the design, layout and construction of an onsite segment precast plant on the project's right of way, to form, cast, steam cure, transport and store over 550 segments, cast year round in the Chicago area. Mr. Brautigam was also responsible for the development of construction sequences to erect the bridge structures, development and implementation of complex maintenance of traffic schemes, and coordination of all

construction engineering activities with the Owner's representatives. Other responsibilities included the supervision of field engineers, surveyors and field superintendents, as well as project management duties for scheduling, cost estimating, materials procurement, post-tensioning activities, quality control, subcontractor coordination and contract administration.

American Bridge Division, U.S. Steel Corporation, Pittsburgh, PA, 1973 to 1987:

Mr. Brautigam held various positions through Senior Engineer in regional engineering office and field project assignments. While employed at the Pittsburgh Regional Engineering Office, he held various structural engineering and project assignments in the Joint Venture Construction Unit, a Commercial Bridge Engineering Unit and an Industrial Construction & Inspection Unit. During his regional engineering assignments, Mr. Brautigam had the good fortune to work with, and learn from, numerous outstanding engineers and construction superintendents who were responsible for the fabrication and erection of some of the world's greatest bridges and buildings. His field project experience was highlighted by a four year assignment in a joint venture during the construction of the 8,860 foot main span unit of the Sunshine Skyway Bridge in St. Petersburg, Florida, an iconic precast segmental post-tensioned cable stayed bridge over Tampa Bay. His assignments and responsibilities grew from Office Engineer at the start of the project to Project Engineer by project completion.

Other Relevant Experience:

During his tenure with the Florida Department of Transportation, Mr. Brautigam has served on several national committees, expert panels and research studies involving Product Evaluation, Performance Based Specifications, Warranty Specifications, the National Highway Specifications Website, SHRP 2 Performance Specs for Rapid Renewal and NHI 134001 Principles for Writing Highway Construction Specifications. Most recently, he served as an expert panel member for the rewrite of NHI 134001 Principles for Writing Highway Construction Specifications, as a team member for the NCHRP Domestic Scan Team 13-02 for Civil Integrated Management (CIM), and a panel member for NCHRP/TRB Synthesis 46-13 Practice on Rumble Strips and Rumble Stripes. He currently serves as a Chairman of NCHRP SP20-30, the NCHRP-IDEA Program (Innovations Deserving Exploratory Analysis) Committee.